

Call for candidates

The Nuclear Physics Division (DAPNIA/SPhN) of the French Atomic Energy Commission (CEA) is recruiting a physicist to fill a staff position in experimental nucleon structure physics.

In the Nuclear Physics division, research is conducted along four major axes: nucleon structure, nuclear structure, quark-gluon plasma, and basic research for nuclear energy. Understanding the structure of the nucleon in terms of its microscopic constituents, quarks and gluons, is one of the key objectives of nuclear physics. Quantum Chromodynamics describes how quarks and gluons interact, but how they are confined inside the nucleon is not yet understood. This is one of our challenges and in this context the SPhN is involved in two major experimental programs at COMPASS at CERN and at JLab in USA.

The candidate will be appointed to work with the COMPASS team to realize deeply virtual Compton scattering (DVCS) and deeply virtual meson production experiments to study generalized parton distributions (GPDs). This is one of the major avenues for a better understanding of the nucleon structure. COMPASS with the CERN SPS beam facility offers the advantage of providing muon beams with positive and negative charges, with a very high energy which gives access to a wide kinematic domain. The experimental program will be achieved in two phases. One phase using a proton target will provide correlations between position and momentum distributions of quarks and gluons inside the nucleon. The second phase using a transversely polarized proton target will shed light on quark and gluon orbital angular momentum contributions to the nucleon spin.

The candidate will participate in the first DVCS run using a small liquid hydrogen target in 2009 and in data analysis. The goal of such a test within a reduced scale factor is to measure the detection efficiency of DVCS events using the forward COMPASS spectrometer completed by a recoil proton detector around the target. This will determine the optimal size of the liquid hydrogen target and its associated recoil proton detector to be built.

The candidate will be involved in all the different stages and commissioning of the experiment (phase 1) with the construction of a recoil proton detector surrounding a long liquid hydrogen target. He(he) will also participate in data analysis and interpretation in the GPD theoretical framework.

Phase 2 of the experiment is foreseen using a recoil proton detector integrated with a transversely polarized target equipped with a high superconducting magnetic field and a transversely holding field. The candidate will be devoted to the design of such an experiment and he(he) will participate in all R&D developments. The candidate will have a major role in this project.

The candidate should have preferably one or more years of post-doctoral experience, but candidates finishing their PhD are also encouraged to apply.

Candidates should send a letter of motivation, a curriculum vitæ including a list of publications, two letters of recommendation, and, when applicable, a copy of their thesis document as well as jury reports on their thesis work, before April 3, 2009, to the following address :

A l'attention de Danielle CORET
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A local committee will establish the list of candidates to be auditioned towards the end of April 2009.